BRUHATH BANGALORE MAHANAGARA PALIKE
EXECUTIVE ENGINEER
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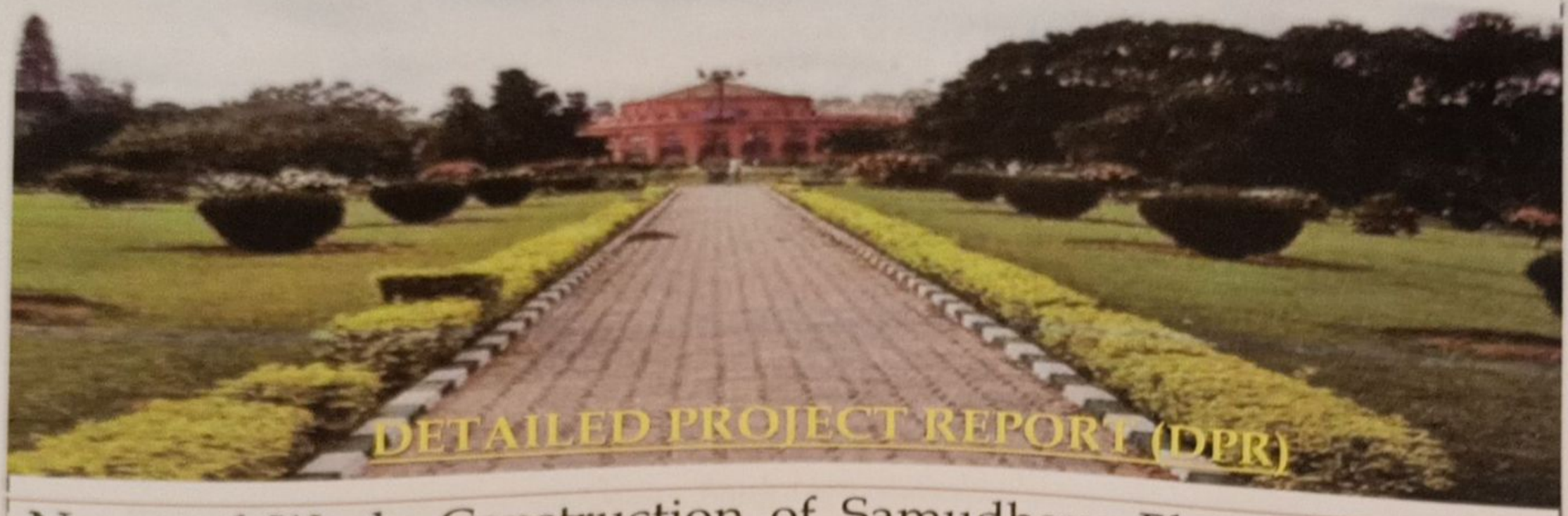

DETAILED PROJECT REPORT (DPR)

Name of Work: Construction of Samudhaya Bhavana Building and Bus shelter & providing grill fencing and other development works at 407 SFS park, 707 SFS park, Sri madivala machideva park and Major Sandeep Unnikrishnan Park of Yelahanka Assembly Constituency Under Amrutha Nagarothana Grants (PACKAGE-02).

Estimate Cost: 1000.00Lakhs

CIVIL SHINE ENGINEERING CONSULTANTS

Address: #31, 4th Cross Behind Sahana School, Veerabhadreshwara Nagar, Herohalli, Benagalore-560091

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INTRODUCTION

1.0 INTRODUCTION

Project Background

Bangalore also rendered Bengaluru, is the capital of the Indian state of Karnataka. It is Located on the Deccan Plateau in the southeastern part of Karnataka. Bangalore is the India's third most populous city and fifth-most populous urban agglomeration. Bangalore is well known as a hub for India's information technology sector. It is among the top 10 preferred entrepreneurial locations in the world. As a growing metropolitan city in a developing country, Bangalore confronts substantial pollution and other logistical and socio-economic problems.

A succession of South Indian dynasties ruled the region of Bangalore until in 1537 A D, KempeGowda-I a feudatory ruler under the Vijayanagara Empire - established a mud fort considered to be the foundation of modern Bangalore. Following transitory occupation by the Marathas and Mughals, the city remained under the Mysore kingdom, which is now a part of the Indian state of Karnataka. Bangalore continued to be a cantonment of the British and a major city of the Princely State of Mysore, which existed as a nominally sovereign entity of the British Raj. Following the Independence of India in 1947, Bangalore became the capital of Mysore state, and remained capital when the new Indian state of Karnataka was formed in 1956.

As a large and growing metropolis, Bangalore is home to many well-recognized colleges and research institutions in India. Numerous public sector heavy industries, technology companies, aerospace, telecommunications, and defense organizations are located in the city. Bangalore is known as the Silicon Valley of India because of its position as the nation's leading IT exporter. A demographically diverse city, Bangalore is a major economic and cultural hub and the second fastest growing major metropolis in India.

BBMP comprises of 147 wards only 3 years, with the spread-out of the city and many new villages coming in merge with the city. BBMP has decided to increase ward number from 147 to 198.

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The Bruhat Bangalore Mahanagara Palike is the fourth largest Municipal Corporation in India, after the city corporations that administer Mumbai, Delhi and Chennai. The BBMP is responsible for infrastructural assets of the Greater Bangalore Metropolitan area, spread across 741 km^2, with a population of 6.8 million.

In this regard, BBMP has assigned the Preparation of Detailed Project Report (DPR) to **Civil Shine Engineering Consultancy** for preparation of Project Report: Construction of Samudhaya Bhavana Building and Bus shelter & providing grill fencing and other development works at 407 SFS park, 707 SFS park, Sri madivala machideva park and Major Sandeep Unnikrishnan Park of Yelahanka Assembly Constituency Under Amrutha Nagarothana Grants (PACKAGE-02).

The Project includes the following Parks.

Sl No	Park name
1	Sri Mahayogi Vemanna Park
2	Unnikrishnan Road Parallel Park
3	J.P Rajarathno Park
4	Sri Madivala Machideva Park
5	Unnikrishnan Park

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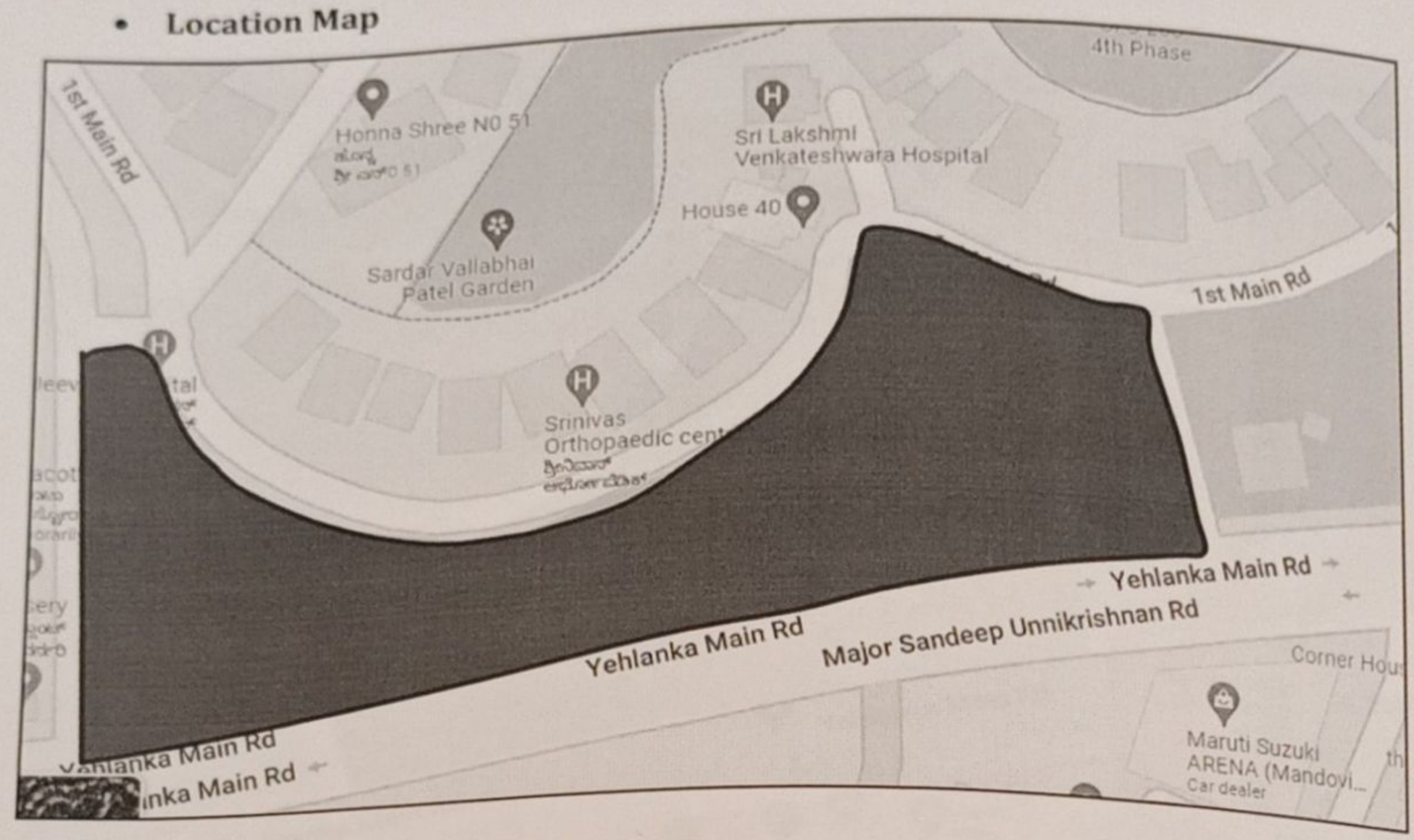
1. Sri Mahayogi Vemanna Park

- **Location Map**



- **Brief description on the Project**

1) **Location–1st Main Road SFS 407, Yelahanaka New Town**

2) **Measurement – 294.00Mtrs**

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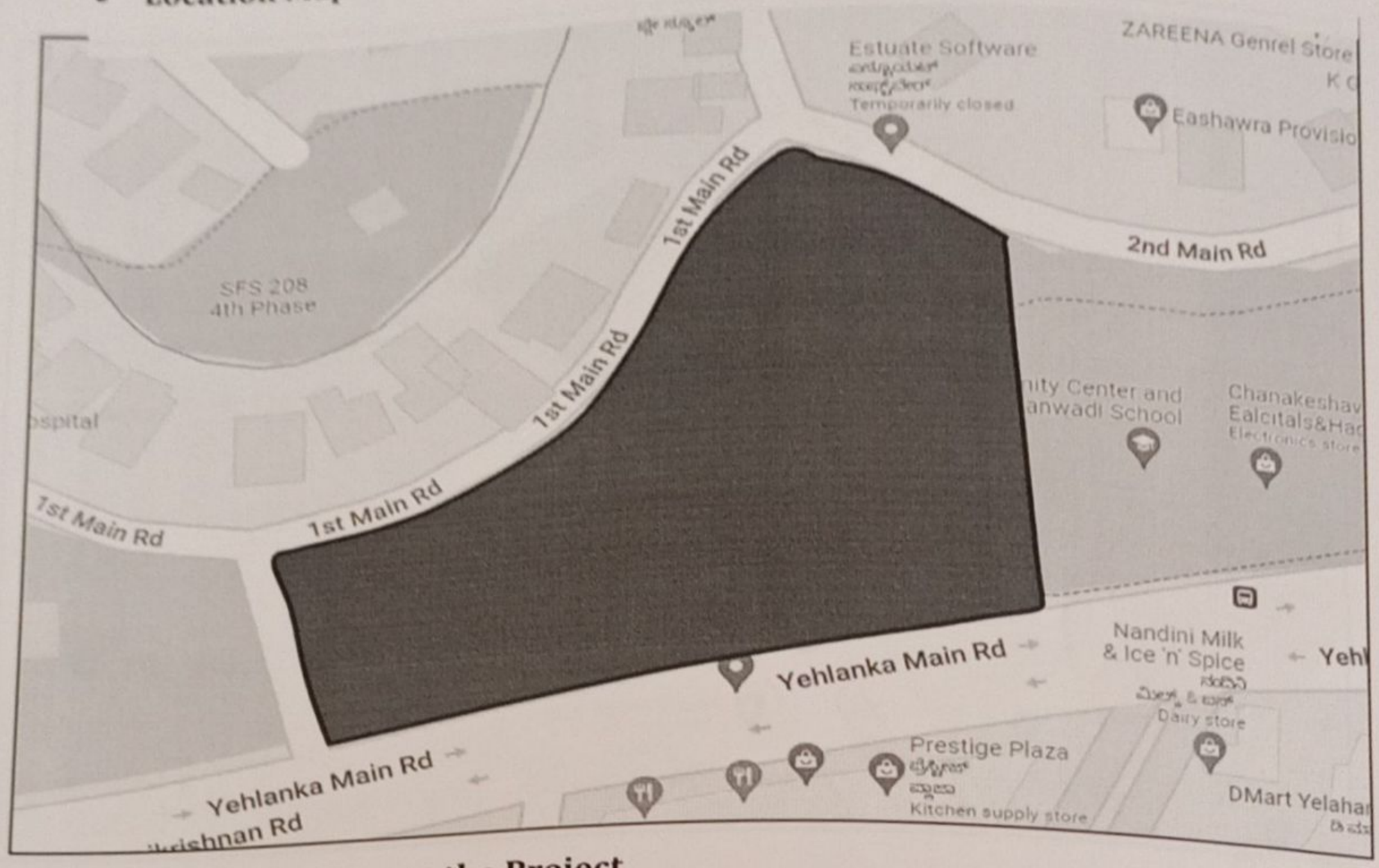
2. Unnikrishnan Road Parallel ParkLocation Map

- **Location Map**



- **Brief description on the Project**

1) **Location –Yelhanka New Town**

3) **Measurement – 255.70Mtrs**

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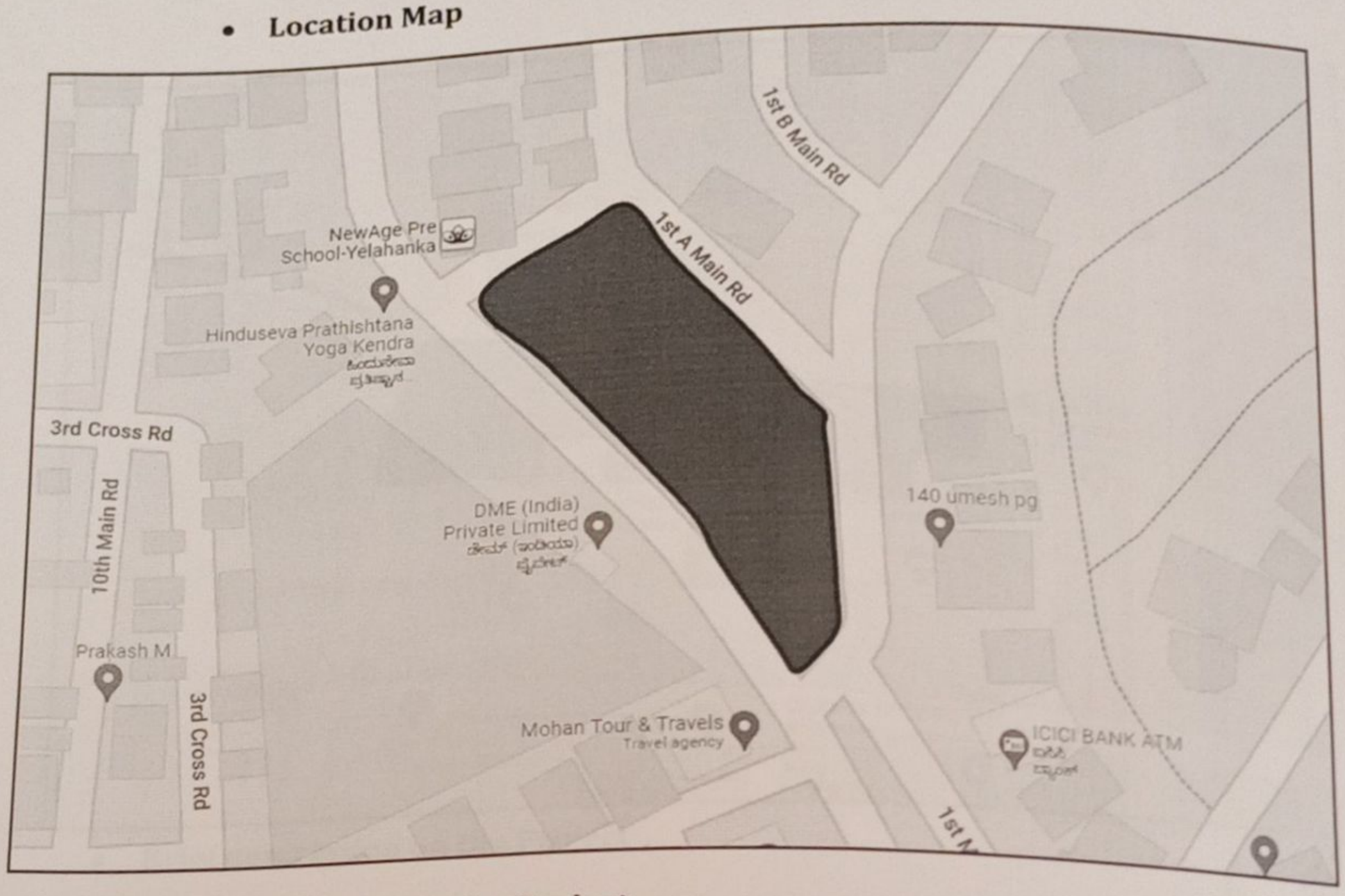
3. J.P Rajarathno Park

- **Location Map**



- **Brief description on the Project**

1) **Location –1st Main Road SFS 407, Yelhanka New Town**

2) **Measurement – 175.00Mtrs**

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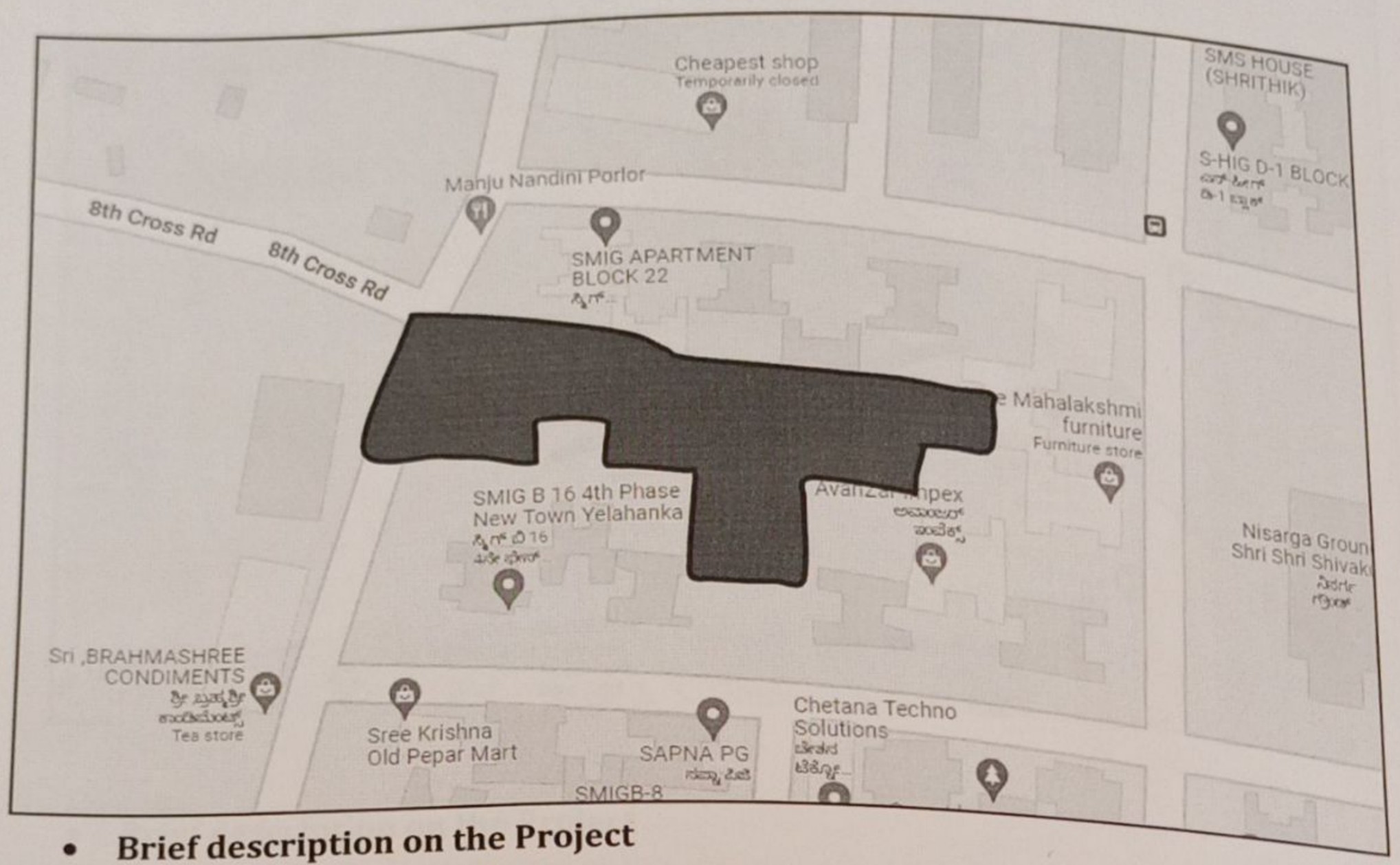
4. Sri MadivalaMachideva Park

- **Location Map**



- **Brief description on the Project**

3) **Location –1st Main Road SFS 407, Yelhanka New Town**

4) **Measurement – 332.00Mtrs**

5. Unnikrishnan Park

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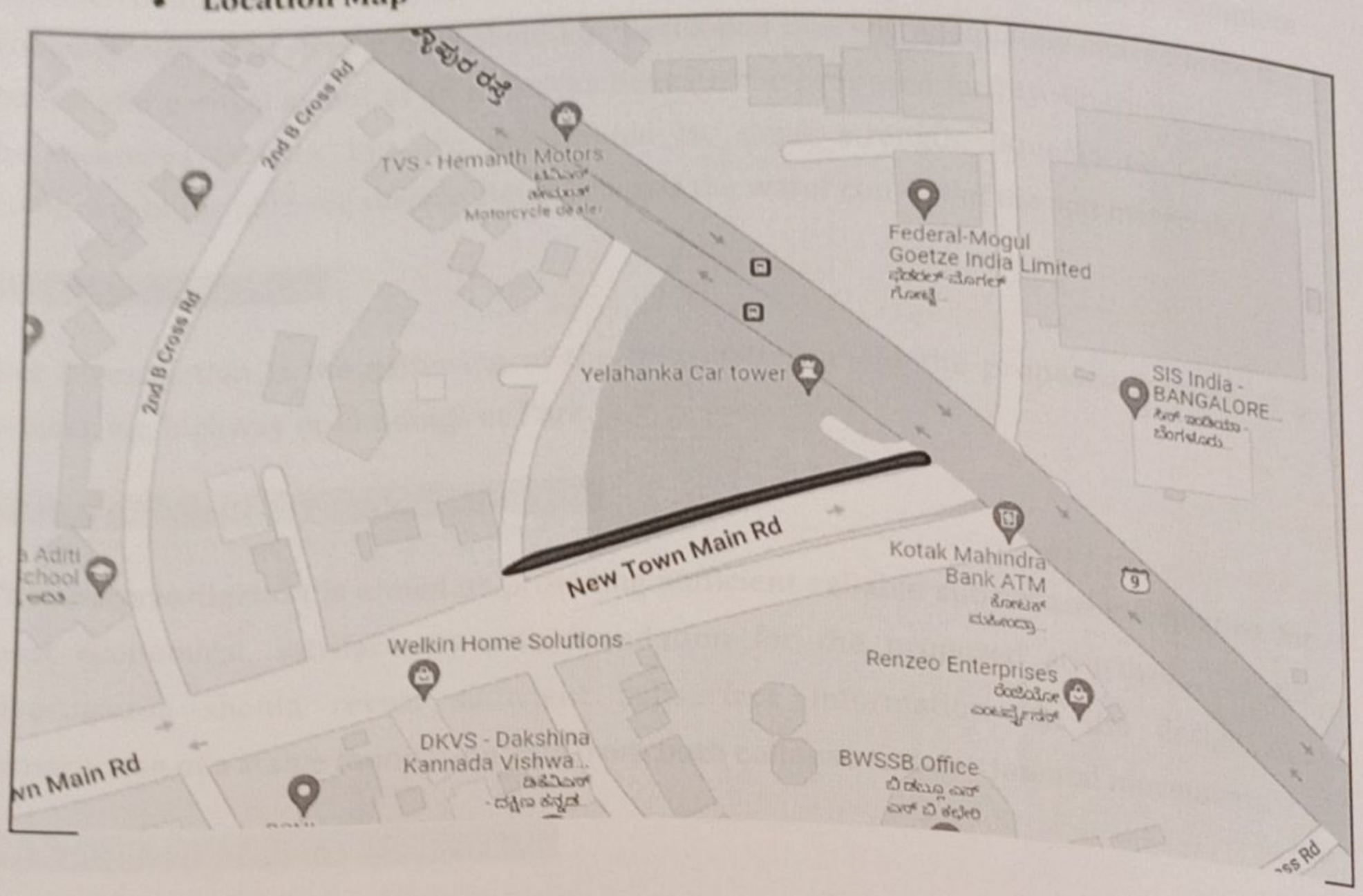
5. Unnikrishnan Part

- **Location Map**



- **Brief description on the Project**

1) **Location –SandeepUnnikrishanan Road, Yelhanka New Town**

2) **Measurement – 103.00Mtrs**

SUBSURFACEINVESTIGATIONS

The purpose of characterizing subsurface conditions is to determine if the soils beneath a facility exhibit properties that ensure the facility will remain stable under static and

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seismic conditions during construction and operation and after it is closed. A complete comprehensive soil stratigraphy should be developed that will adequately characterize the lateral and vertical extent of all soil units beneath the proposed facility. Characteristics to be measured include, but are not limited to, shear strength, liquefaction potential, compressibility, phreatic surface elevations and the water content of the soil materials

SITE INVESTIGATION

Site Investigation is the gathering of the information about the proposed location of a project, e.g. highway or buildings or Park.

THE PURPOSE OF SITE INVESTIGATION

The site investigation is aimed at providing sufficient reliable subsurface information for most economical, satisfactorily safe foundation for the proposed structure. The site investigation should reveal sufficient subsurface information for the design and construction of a stable foundation safe from both collapse and detrimental movements.

THE SCOPE OF SITE INVESTIGATION

Topography

Soil profile

Ground-water condition

THE STAGES OF SITE INVESTIGATION

In general, a site investigation program should comprise four stages, i.e. :

Desk study and site reconnaissance,

Preliminary ground investigation,

Detailed ground investigation

DESK STUDY AND SITE RECONNAISSANCE

The desk study is the first stage of the site investigation process which involves researching the site to gain as much information as possible, both geological and historical. A good starting point is to use Ordinance survey maps which allow the selection of the site by obtaining accurate grid reference through the maps. In addition to present maps, old maps

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are used to gain historical information such as former uses of the site; concealed mine workings; in filled ponds; old pits; disused quarries; changes in potential landslide areas, etc.

THE SOURCE OF INFORMATION THAT USEFUL IN DESK STUDY:

Geological map

Geological maps are probably most important source of information as these give and excellent indication of the sort of ground conditions like to be encountered. Aerial photography Aerial photography is another extremely useful source of information on topography and ground conditions. Records of previous investigation Records of previous investigation reports also helpful in a desk study. The many sources of site investigation data include previous company and Public Works Department.

The reconnaissance phase of a site investigation

This site investigation is done through a site visit or walk-over survey. Important evidences to look for are site lay out, surface condition, climate and hazards water levels, etc. Generally the desk study and reconnaissance is aimed at the feasibility study of the being planned. If the desk study shows that the site is feasible for the structure, then preliminary investigation should follows.

PRELIMINARY INVESTIGATION

Preliminary Investigation is aimed at predicting the geological structures, soil profiles and the position of ground water table by geophysical method or by making a few boreholes. The investigation should give information on the existence on ground structures that may need closer examination: for example, the extent of disturbed strata, The location and extend of natural cavities and mine workings. Fractures and river crossings or alluvial areas that may have buried soft material or pet, their liability to cause subsidence, surface movements or instability Information on suitability of soil for fills work, ground water condition and the possibility of flooding should be provided at this stage.

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DETAILED INVESTIGATION

At this stage, the extent of the test, number and depth of boreholes, selection of appropriate equipment for field testing and the choice of laboratory testing are made. Soil exploration consists of three steps: Boring and in-situ testing,Sampling,Laboratory testing.

MONITORING

Monitoring during construction and maintenance period is required whether the expectations of the proceeding investigation have been realize. No one can ensure that the soil parameters used for design is the most representative of the soil conditions at the site unless the response is observed. Field observation can help for early diagnosis and redemption of any problem that might be encountered during construction. Among the measurement made during the monitoring stage are the settlement, displacement, deformation, inclination, and pore water pressure.

City parks help clean the air and improve public health. Green spaces also filter rain, reducing water pollution, protecting drinking water, and decreasing the rates of waterborne illness. Green spaces in **cities** also help cool our **cities**, reducing the heat-island effect.

ECONOMIC DEVELOPMENT

Parks provide intrinsic environmental, aesthetic, and recreation **benefits** to our cities. They are also a source of positive economic **benefits**. They enhance property values, increase municipal revenue, bring in homebuyers and workers, and attract retirees.

Parks and recreation infrastructure and facilities promotes conservation and environmental sustainability. According to a report by the NPRA, **parks** facilities conserve natural resources and wildlife habitat, protect air and water quality, and preserve open space for current and future generations.

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Community centers provide a safe place for young people to hang out, make new friends, and stay out of trouble. With a focus on sports and fitness, **community centers** can also reduce childhood obesity and promote health and wellness.

A **park** is an area of natural, semi-natural or planted space set aside for human enjoyment and recreation or for the protection of wildlife or natural habitats. Urban **parks** are green spaces set aside for recreation inside towns and cities. . Many **parks** have trails for walking, biking and other activities.

- **Encourage social interaction.**
- **Improve concentration and learning.**
- **Increase personal confidence and self-awareness.**
- **Reduce feelings of depression and anxiety.**
- **Enhance self-esteem.**
- **Improve quality of life.**

Parks and protected **public** lands are proven to improve water quality, protect groundwater, prevent flooding, improve the quality of the air we breathe, provide vegetative buffers to development, produce habitat for wildlife, and provide a place for children and families to connect with nature and recreate outdoors .

Parks are emerging as important public health solutions in urban communities. Nearly 40 years of research evidence confirms that nearby nature, including parks, gardens, the urban forest and green spaces, support human health and wellness. The research about active living and opportunities to avoid chronic diseases (such as diabetes, heart disease and respiratory problems) is particularly relevant to large parks where people can enjoy walking and bike paths, and playing fields. But, equally as important is the role of small parks and nature spaces for health.

In many communities, additional land for large parks is either expensive or difficult to repurpose. Every parcel or easement is ever more valuable. Creating small parks can be a

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productive public and private joint venture that introduces the spaces for nature encounters that benefit everyone.

Co-Benefits of City Systems

An emerging opportunity for parks and recreation is the integration of green infrastructure and parks goals. Infrastructure systems are planned to systematically source and deliver crucial services or products, such as transportation or water systems. The term "infrastructure" usually brings to mind roads, pipes and power lines. Green infrastructure systems, however, are practical integrations of built and ecological systems that incorporate natural and constructed green spaces to replace or augment traditional gray infrastructure.

Parks and green infrastructure can be co-designed for co-benefits. Parks can serve their primary goals to offer recreation and aesthetic amenities, while also containing spaces that mitigate stormwater or improve air quality. Green infrastructure can achieve essential utility functions in the community, but may also be designed to create the environments that provide nearby nature experiences and support health.

Green infrastructure includes bioswales, rain gardens and other water harvesting features. If a collection of these small nature spaces is to be installed within a community, then a systems outlook is important. The TKF Foundation, a philanthropy dedicated to creating small, high-quality gardens, promotes a "sites-to-systems" outlook so that the sum benefit of small nature spaces is greater than the many parts. Rather than focusing only on the design of individual parcels or features, a broader planning approach could integrate a series of small spaces into a coherent network.

Integrating parks and green infrastructure, co-design for co-benefits: these can be unconventional practices in many public works and parks departments. They are goals that cross the borders of typical policies and purposes. Why is this activity important? Health services costs total nearly 17 percent of the annual U.S. gross domestic product. Creative programs that enable more nature contact in the city can help reduce costs at both the national and community level.

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Health Benefits from Small Nature Spaces

Following is a small sample from the research literature of the health benefits gained specifically from small nature spaces:

Improved General Mood and Attitude

A study that compared meditative and athletic walking in forest and indoor settings showed that in both environments meditative walking generated more positive psychological effects than athletic walking. Other investigators have found evidence of lower frustration and increased brain activity, resembling meditation, when moving in green space versus being in retail and commercial areas that have no trees. Also, meditative walking in the forest was the most effective at increasing happiness, defined as the presence of a positive emotional mindset. Psychologists know that being happy broadens how a person thinks about and acts in the daily flow of life's efforts, creating positive intellectual and psychological resources.

Stress Reduction

Stress is a major contributor to ill health. Left unresolved, long-term stress can lead to immune system issues and illness. The experience of nature is one antidote to stress, and the body's positive response is remarkably fast, occurring within minutes. Studies by environmental psychologists show that visual exposure to nature, in the form of trees, grass and flowers, can effectively reduce stress, particularly if initial stress levels are high.

Better Mental Health and Functioning

Experiences of nearby nature contribute to better mental health and improve one's capacity to be productive according to Attention Restoration Theory. Modern life often demands sustained focus on projects, and this effort can lead to cognitive overload, bringing on irritability and an inability to function effectively, often with physical symptoms. Views or brief experiences of nearby nature help to restore the mind from mental fatigue, as natural settings provide respite from the highly focused attention needed for most tasks in school or at work. This may contribute to higher productivity in the workplace, as research shows that office workers with a view of nature are better able to

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attend to tasks, report fewer illnesses and have higher job satisfaction. Increased time of nature experience (up to 1.5 hours) increases the restorative effect.

Improved Mindfulness and Creativity

Contemporary lifestyles are very busy, and there is a greater need for intentional time-outs to be mindful. Studies of mindfulness workshops, held for both mentally healthy and clinically depressed individuals, show benefits of improved mood, cognitive function and immune response. Nature settings offer sensory inputs that are mentally restorative and can foster ideation. In a study of creative professionals, nature experiences enhanced creativity by evoking new ways of thinking, promoting curiosity and encouraging more flexible thinking. A nature recharge may support creativity, as the restored mind is better at analyzing and developing ideas.

Building Social Capital

Social capital, a critical condition for a host of community benefits, is formed from the interpersonal relationships of people and resulting supportive networks. The mere presence of landscape or trees appears to promote community connections. Views of green space from homes are linked to greater perceptions of well-being and neighborhood satisfaction. Public housing residents reported feeling more safe if their development had well-maintained landscaping, including trees and grass. Greener public housing neighborhoods tend to be safer, with fewer incivilities and less reported crimes. Active involvement in community greening and nature restoration projects also produces social benefits, including strengthening of intergenerational ties and organizational empowerment.

Scientific evidence should be the basis of future efforts to make cities more sustainable and sustaining. We now know that nearby nature — including small plots or parcels imbedded within all land uses — directly contributes to quality human habitat and is profoundly important for the health of mind and body. Integrations of parks and infrastructure goals can provide more opportunities for the nearby nature experiences that promote good health and sustain wellness.

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Location:

Where a plaza or small park is located has a definite impact on its level of activity. Ideally, the public space should be "where the action is" - in other words, close to popular destinations, busy businesses, or attractive activities. A good location will draw people into a small park or plaza, which in term will make them feel safe and comfortable being there.

Seating:

Parks and plazas are great places to meet and talk, so providing benches or some other type of seating is essential.

Natural Landscaping:

While there may be a few examples of good public spaces without it, most successful small parks and plazas have some natural landscaping (usually deciduous trees and shrubs). It doesn't necessarily have to be a large amount, but such greenery provides shade during warmer seasons and a resting spot

Lighting:

Sunlight and man-made lighting make a space feel more inviting, comfortable, and safe. Sunlight also provides warmth, while man-made lighting illuminates gathering places after the sun goes down. Lighting is also an important factor in creating a safe and more

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crime-free environment (see my recent blog post on livable and safe communities for more information).

Water Features:

Fountains have traditionally been a feature of parks, both big and small. In more recent times, the classic fountain has been replaced by interactive water features, which provide a pleasing sound and allow people to cool off during hot weather.

Public Art:

Pieces of public art can enliven a space, both aesthetically and as a conversation starter. Public art can be functional, or just fun and inviting.

Gazebos:

Gazebos are freestanding or attached to a garden wall, roofed, and open on all sides. They provide shade, shelter, ornamental features in a landscape, and a place to rest. Some gazebos in public parks are large enough to serve as bandstands or rain shelters.

Entertainment:

Scheduling a program of activities, such as a weekly farmers market or a concert series, can entice people to a public space.

Other features that are nice to have include an inviting entrance to the space, delineation of the park or plaza's boundaries (such as short plantings, short fences, or differentiated pavement materials), protection from the elements, and adjacent buildings that provide a sense of enclosure to the public space.

Does this mean that every small plaza or park needs to have all of these elements? No, although the level of activity may drop as you remove some of those features. But I would maintain that some physical elements, such as seating and adequate lighting, are essential to making a gathering place work well.

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Having a successful, active plaza or small park is what most communities strive for. Incorporating some or all of the nine elements described above will increase your chances of success.

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TECHNICAL REPORT

General

The cost estimate has been prepared separately for the Park and given in the other volume.

Rate Analysis

Unit rates have been adopted for the items of the project based on the Karnataka state PWD schedule of rates i.e. PWDSR 2018-19 for Bangalore District.

Cost Components for Quantification

The construction items covered in cost estimates include different heads such as:

- Improvements of Compound
- Improvements of Fencing
- Pathway Beatification

Total Cost for Project

The various cost components like cost of Park, Building works and provisions for other items such as tender premium, miscellaneous provisions, QC and DPR charges, and construction supervision have been included in the project costing for road sections. The abstract and cost estimate for the project roads is summarized in Volume II

CIVIL SHINE ENGINEERING CONSULTANTS
Bangalore

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